

**JP 2001-160960 DIGITAL BROADCAST CHARGING SYSTEM AND DIGITAL  
BROADCAST SYSTEM  
NEC CORP., 02.12.1999**

**ABSTRACT:**

**PROBLEM TO BE SOLVED:** To provide video and audio data with quality in response to a view charge paid by a viewer by providing charge choices to charged broadcasting.

**SOLUTION:** This digital broadcast charging system is provided with means 6, 9, 16, 19 that change the quality of video and audio data in the case of reception display by a video output section 8, when recording by a recording medium 14 and reproducing a broadcast program to set a view charge in response to the quality of the video audio data. The charging information is transmitted to a broadcast provider via a network unit 12.

**FIELD:**

[The technical field to which invention belongs] Especially this invention relates to the digital -broadcasting accounting equipment and the digital-broadcasting system which offer the picture and voice according to the audience fee which a televiewer pays about an accounting control of digital broadcasting.

**TECHNIQUE:**

[Description of the Prior Art] In accounting of the charged broadcast by the conventional satellite broadcasting and digital broadcasting The method which accounting is carried out by the monthly contract like wowwow, and scramble is solved by the contract and makes viewing and listening possible, By performing the prior accounting contract of the moon unit for every channel like SkyperteTV or DirecTV, and registering the information into a receiver There are methods, such as pay-per-view which a receiver records the method which makes viewing and listening possible, and the use performance to which it viewed and listened per program, and uses the telephone line etc. for a service provider, transmits to it, and carries out accounting by the viewing-and-listening performance. Moreover, there is technique of changing viewing-and-listening quality of image as a preview as proposed by JP,9-247616,A as what changes and displays the quality of image of a charged broadcast.

**TECHNICAL PROBLEM:**

[Problem(s) to be Solved by the Invention] It was not what can offer the alternative to various requests of

if, as for the conventional charging system, only one price is set to one program about a charged broadcast, but a televiewer has only one alternative of whether it pays, views and listens to an applicable tariff, and you want to view and listen at a low tariff to the same program even if quality of image and tone quality are somewhat bad, a televiewer who says that him wants to view and listen that it is high to audience fee gold high definition and qualitatively of loud sound. Although this needs a certain differential factor with other amount of money for every accounting amount of money to set two or more accounting amount of

money as one program, by the conventional device, it is based on not having the function which can differentiate the accounting amount of money to one program.

[0004] Moreover, even if it viewed, listened and recorded where the quality of a picture and voice, such as watching a high definition (HDTV) broadcast etc. by usual TV for NTSC, is lowered since it did not have conventionally the structure which performs the accounting control by the quality of a picture or voice, the same accounting as a high-definition broadcast started, and there was a problem in that an unfair feeling followed as a charging system.

[0005] (The purpose of invention) The purpose of this invention enables selection of the viewing-and-listening quality of a picture and voice, and a setup of the accounting amount of money according to the viewing-and-listening quality, and it is in offering the digital-broadcasting accounting equipment and the digital-broadcasting system which have the alternative of two or more carats frame in accounting of one program.

[0006] It is in the purpose of this invention offering the digital-broadcasting accounting equipment and the digital-broadcasting system which can change the quality of a picture and voice, and enable a setup of the accounting amount of money for every viewing-and-listening quality of a picture and voice, and have the alternative of two or more carats frame in accounting of one program in the case of regeneration of the program recorded [ a display of a program, record, and ].

## MEANS

[Means for Solving the Problem] The digital-broadcasting accounting equipment of this invention receives the broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice data. A means to take out and decrypt accounting information data, and the picture data and voice data which were encoded from the broadcast data which are the digital-broadcasting accounting equipment which performs accounting according to the viewing-and-listening quality, and were received, A means to change the quality (resolution and bit rate) of the decrypted picture data and voice data, A means to specify the quality (resolution and bit rate) of the picture and voice at the time of a user viewing and listening, Accounting of the amount of money which changed with the quality of image and tone quality which consists of a means accumulated and transmitted and specified the accounting performance at the time of viewing and listening of a user is performed to its accounting post, Or the means which takes out accounting information data, and the picture data and voice data which were encoded from the received broadcast data, A means to change the picture data and voice data taken out from broadcast data into the code data from which a quality (resolution and bit rate) is different, A means to specify the quality after conversion of picture data and voice data (resolution, a bit rate, compression method), Accounting of the amount of money which changed with the quality of image and tone quality which a means to record picture data and voice data, and a means to accumulate and transmit an accounting performance to one's accounting post were consisted of, and was specified when a user was record of picture data and voice data is performed, Or a means to record the received broadcast data and a means to take out and decrypt accounting information data, and the picture data and voice data which were encoded at the time of regeneration of the recorded broadcast data, A means to change the quality (resolution and bit rate) of the decrypted picture data and voice data, A means to specify the quality (resolution and bit rate) of the picture and voice at the time of a user viewing and listening, In case regeneration viewing and listening of the broadcast data which consist of a means accumulated and transmitted and recorded the accounting performance is carried out to its accounting post, it is characterized by performing accounting of the

amount of money which changed with the quality of image and tone quality specified by the user.

[0008] The digital-broadcasting system of this invention receives the broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice data. A means to take out and decrypt accounting information data, and the picture data and voice data which were encoded from the broadcast data which specified the viewing-and-listening quality, received the aforementioned broadcast data, are the digital-broadcasting system which performs accounting according to the viewing-and-listening quality, and were received, A means to change the quality (resolution and bit rate) of the decrypted picture data and voice data, A means to specify the quality (resolution and bit rate) of the picture and voice at the time of a user viewing and listening, Accounting of the amount of money which changed with the quality of image and tone quality which consists of a means accumulated and transmitted and specified the accounting performance at the time of viewing and listening of a user is performed to its accounting post, Or the means which takes out accounting information data, and the picture data and voice data which were encoded from the received broadcast data, A means to change the picture data and voice data taken out from the broadcast into the code data from which a quality (resolution and bit rate) is different, A means to specify the quality after conversion of picture data and voice data (resolution, a bit rate, compression method), Accounting of the amount of money which changed with the quality of image and tone quality which a means to record picture data and voice data, and a means to accumulate and transmit an accounting performance to one's accounting post were consisted of, and was specified when a user was record of picture data and voice data is performed, Or a means to record the received broadcast data and a means to take out and decrypt accounting information data, and the picture data and voice data which were encoded at the time of regeneration of the recorded broadcast data, A means to change the quality (resolution and bit rate) of the decrypted picture data and voice data, A means to specify the quality (resolution and bit rate) of the picture and voice at the time of a user viewing and listening, In case regeneration viewing and listening of the broadcast data which consist of a means accumulated and transmitted and recorded the accounting performance is carried out to its accounting post, it is characterized by performing accounting of the amount of money which changed with the quality of image and tone quality specified by the user.

[0009] A means by which a concrete configuration sorts out the received accounting information data from program data of this invention, the encoded picture data, and voice data more, A means to specify the quality (resolution, a coding method, bit rate) of the picture and voice at the time of a user viewing, listening and recording, A means to determine the accounting amount of money, to create an accounting performance information, and to permit display / record operation of a program from the picture and voice quality specified by the accounting information data sorted out and the user (picture resolution, a coding method, bit rate), A means to accumulate and transmit an accounting performance, and a means to decrypt picture data and voice data, It consists of a means to change the resolution of the decrypted picture data into the resolution specified by the user, a means to encode the changed picture and voice by the coding method and bit rate specified by the user, and a means that records and reproduces the encoded picture data and voice data at a record medium.

## **DESCRIPTION OF DRAWINGS**

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the gestalt of 1 operation of the digital-broadcasting accounting equipment of this invention, and a digital-broadcasting system.

[Drawing 2] It is the flow view showing the accounting at the time of a charged broadcast reception.

[Drawing 3] It is drawing showing the example of the display screen of the tariff information display at the time of a charged broadcast reception.

[Drawing 4] It is the flow view showing the accounting at the time of recorded on videotape broadcast regeneration.

[Drawing 5] It is drawing showing the example of the display screen of the tariff information display at the time of recorded on videotape broadcast regeneration.

[Drawing 6] It is the block diagram showing the gestalt of other operations.

[Description of Notations]

- 1 Demodulator
- 2 Demux
- 3 Voice Decoder
- 4 Picture Decoder
- 5 Control Section
- 6 Resolution Transducer
- 7 D/A-Conversion Section
- 8 Picture Output Section
- 9 Picture Encoder
- 10 Voice Encoder
- 11 Data Mux
- 12 Network Equipment
- 13 Record Control Section
- 14 Record Medium
- 15 Input Section
- 16 Bit Rate Transducer

## **OPERATION**

With the accounting information data picked out from broadcast data, at the time of a display of a picture

(Operation) At the time of record, the accounting amount of money in the quality of each picture and voice at the time of regeneration of a recorded broadcast is shown in a user, perform display in the quality of the picture and voice according to the accounting amount of money specified by the user, record, and regeneration, and the accounting performance by transmitting to a broadcasting industry company side Selection of a setup of two or more accounting amount of money is enabled to the same program.

[0011] [Embodiments of the Invention] (Explanation of a configuration) Next, the gestalt of 1 operation of the digital-broadcasting accounting equipment of this invention and a digital-broadcasting system is explained in detail with reference to a drawing.

[0012] Drawing 1 is a block diagram showing the configuration of the gestalt of 1 operation of the digital-broadcasting receiver concerning the digital-broadcasting accounting equipment and the digital-broadcasting system of this invention. With the gestalt of this operation, the broadcast data containing the accounting information data and the control data according to the viewing-and-listening quality of the picture data by which digital coding was carried out and voice data, and the aforementioned aforementioned picture data and voice data which were transmitted from the broadcasting station are received, and accounting of the amount of money different according to the quality of image and tone quality specified by the user of a digital-broadcasting receiver is performed.

[0013] The gestalt of this operation inputs the data from the record control section 13 which records the broadcast data which changed the demodulator 1 which receives and restores to broadcast data, broadcast data, or the resolution of the picture data, and the demodulator 1, or the regeneration data from the record control section 13. Picture data, voice data, By specification of the picture decoder 4 which decodes the decollator (Demux) 2 which separates the accounting information data and the control data corresponding to a viewing-and-listening quality, the separated picture data, and voice data and the voice decoder 3, and a user The picture encoder 9 which encodes the resolution transducer 6 and picture data which change the resolution of picture data, and voice data and the voice encoder 10, picture data, Voice data, Accounting information data and control data The merge equipment (data mux) 11 to multiplex, the input section 15 which performs program purchase and decrypted quality specification of a picture and voice, a picture and voice decoders 4 and 3, a picture and voice encoders 9 and 10, the picture output section 8, the resolution transducer 6, and the network equipment 12 It has the control section 5 to control.

[0014] The functional description of each part is as follows. A demodulator 1 restores to the received broadcast data to digital data. Demux2 classifies the digital data to which it restored to picture data, voice data, accounting information data, and control data. The voice decoder 3 carries out the decode of the voice data. The picture decoder 4 carries out the decode of the picture data. The input section 15 is a control unit which inputs selection of viewing and listening by the quality of image which a charged broadcast purchases and wishes, or picture recording etc., and a control section 5 performs each part control of equipment by the control data from the input and received data from the aforementioned input section 15 etc. The resolution transducer 6 changes resolution of the picture data by which decode was carried out. The D/A-conversion section 7 carries out analog conversion of the voice data by which decode was carried out, and outputs it. The picture output section 8 performs the synthetic display with the display screens, such as a quality-of-image pair audience fee of a display of the inputted picture data, and the charged broadcast created inside, etc. The picture encoder 9 encodes picture data. The voice encoder 10 encodes voice data. Data mux11 perform synthesis of coding picture data, coding voice data, accounting information data, and control data. The network equipment 12 transmits the accounting performance which performed the communication with its accounting post of the equipment exterior etc., and was accumulated with the equipment of a modem etc. The record control section 13 controls record regeneration of data to a record medium 14. The broadcast data which compounded picture data, voice data, accounting information data, the control data, etc. are recorded on a record medium 14.

[0015] (Explanation of operation) Next, the display at the time of receiving a broadcast and accounting are explained about the gestalt of this operation using drawing 1 .

[0016] It gets over in a demodulator 1 and the input signal of a broadcast is outputted as one digital data

which consists of the picture data by which digital coding is carried out, voice data, accounting information data, and control data. the concerned digital data -- Demux2 -- setting -- picture data, voice data, accounting information data, and control data -- voice data is sent to the voice decoder 3, and a classification eclipse and picture data are sent for accounting information data and control data to the picture decoder 4 at a control section 5

[0017] A control section 5 performs a control of the whole receiver and the control about accounting. In a

control section 5, that it becomes clear that the broadcast which received from the control data from Demux2 is a charged broadcast stops the picture in the picture decoder 4 and the voice decoder 3, and audio decode at once. The information on the tariff about a charged broadcast is taken out from accounting information data, the picture output section 8 is controlled and the display about the purchase of a charged broadcast, the amount of money, etc. is performed to a user.

[0018] Drawing 2 is a processing flow view in which being the flow view showing the accounting at the time of a charged broadcast reception, and showing the processing operation after the aforementioned display especially. Drawing 3 is drawing showing the example of a display of a tariff information display.

[0019] In the tariff information display (step 21) of drawing 2 , a control section 5 controls the picture output section 8, and performs the display shown in drawing 3 . In a display of drawing 3 , a display of the modality display 51 of quality of image, the tariff display 52 at the time of viewing and listening, and the tariff display 53 at the time of picture recording is included.

[0020] Next, when a user looks at the tariff displayed on the screen of the picture output section 8 and

purchases a program, alter operation which chooses viewing and listening or picture recording of quality of image which he wishes from the input section 15 is performed. If alter operation is detected in processing of a user input (step 22), it is judged whether it is program purchase to which an input views and listens to a program in processing of purchase (step 23), and in not being operation of program purchase, it will end a display by processing of a display halt (step 34). When it is operation of program purchase, the existence of viewing-and-listening quality specification is judged by processing of viewing and listening (step 24). When there is viewing-and-listening quality specification from a user, a resolution setup of the resolution transducer 6 is performed so that it may become the resolution of the quality of image which the user specified by processing of a resolution transducer setup (step 25).

[0021] Next, a setup of the voice decoder 3 is performed in processing of a voice decoder setup (step 26), and a setup of the picture decoder 4 is performed in processing of a picture decoder setup (step 27). The decode of the picture data inputted into the picture decoder 4 from Demux2 by this is carried out by the picture decoder 4, they are inputted into the resolution transducer 6, it is changed into appointed resolution by the resolution transducer 6, and the picture data after conversion are sent to the picture output section 8. In the picture output section 8, the display output of picture data is started in picture data from the resolution transducer 6 based on a setup from a control section 5.

[0022] Next, in processing of viewing-and-listening performance record (step 28), a viewing-and-listening

performance is recorded as accounting. Moreover, when there is no viewing-and-listening quality specification in processing of viewing and listening (step 24), and when start processing of the viewing-and-listening performance record in viewing-and-listening performance record (step 28) etc. is completed, authentication of specification of picture-recording purchase which records a program on videotape in processing of picture recording (step 29) is performed. Processing is ended when there is no specification of the picture-recording purchase of a user. When there is specification of the picture-recording purchase from the input section 15, in processing of a picture encoder setup (step 30), the bit rate at the time of encoding of the picture encoder 9, coding methods (mpeg1, mpeg2, etc.), GOP configuration, etc. are set up in accordance with the picture-recording quality specification specified by viewing-and-listening quality specification of a user.

[0023] Next, in processing of a voice encoder setup (step 31), a bit rate and a coding method are set up for the voice encoder 10 in accordance with picture-recording quality specification of a user. Next, in processing of a record control point setting (step 32), the record control section 13 is set as a picture-recording operation. Picture data are inputted into the picture encoder 9 from the resolution transducer 6. The picture encoder 9 encodes the picture data inputted according to the content set up at step 30, and outputs the encoded data to data mux11. Voice data is inputted into the voice encoder 10 from a voice decoder. The inputted voice data encodes voice data according to the content set up in step 31, and sends the encoded data to data mux11.

[0024] The voice data encoded from the picture data encoded from the picture encoder 9 and the voice encoder 10, the control data from a control section 5, and the accounting information data about accounting are inputted into data mux11, and it is compounded by one data, and is sent to the record control section 13. In the record control section 13, the encoded picture data which were inputted from data mux11, voice data and control data, and accounting information data are recorded on a record medium 14 according to the content set up at step 32.

[0025] And in processing of picture-recording performance record (step 33), a picture-recording performance is recorded and accounting is performed. The viewing-and-listening performance and picture-recording performance which were accumulated at step 28 and step 33 are transmitted to their accounting posts, such as a broadcasting industry company, a program provider, or a vicarious execution business firm of tariff collection, by the network equipment 12, and processing as a use tariff is performed.

[0026] Next, the accounting at the time of regeneration of data recorded on videotape is explained using drawing 1, the drawing 4, and the drawing 5.

[0027] Drawing 4 is a flow view showing the accounting at the time of registered broadcast regeneration, and drawing 5 is drawing showing the example of a display of the tariff information display at the time of the aforementioned broadcast regeneration. The data read from the record medium 14 by the record control section 13 are sent to Demux2. The inputted data are classified into picture code data, voice code data, accounting information data, and control

data in Demux2. In a control section 5, if it is checked that the data reproduced from a record medium from the inputted control data are charged broadcast data, in processing of the tariff information display (step 41) of drawing 4, the picture output section 8 will be controlled and the display about the audience fee of a program as shown in drawing 5 will be performed.

[0028] Next, when a user looks at the tariff displayed on the screen of the picture output section 8 and

purchases a program, alter operation of the quality specification which he wishes at the time of program

purchase from the input section 15 is performed. If alter operation is detected in processing of a user input (step 42), the existence of processing of program purchase is checked in processing of purchase (step 43), when it is not program purchase, it will become regeneration halt processing of a regeneration halt (step 49), and the record control section 13 will be controlled, and regeneration of the data from a record medium 14 recorded on videotape will be stopped. When it is program purchase and there is viewing-and-listening quality specification in processing of viewing and listening (step 44) The resolution transducer 6 is set up by processing of a resolution transducer setup (step 45) like the time of regeneration of the aforementioned reception broadcast. The voice decoder 3 is set up by processing of a voice decoder setup (step 46), regeneration of the picture and voice which set up the picture decoder 4 and were recorded on videotape by processing of a picture decoder setup (step 47) is performed, and a viewing-and-listening performance is recorded by processing of viewing-and-listening performance record (step 48). The recorded viewing-and-listening performance is sent through the network equipment 12 like its accounting posts, such as a broadcasting industry company, a program provider, or a vicarious execution business firm of tariff collection, like the viewing-and-listening performance of reception viewing and listening of the above-mentioned broadcast, and a picture-recording performance, and processing of a use tariff is performed. In addition, at step 44, if there is no viewing-and-listening quality specification, processing will be ended.

[0029] (others -- gestalt of operation) although it constituted from the gestalt of the above operation so that the data decoded by the end picture and the voice decoder might be recorded through the resolution

transducer 6, the picture encoder 9, and a voice encoder as received data to a record medium 14, it can

constitute so that the received data obtained from the demodulator 1 may be directly recorded as gestalt of other operations

[0030] Drawing 6 is drawing showing the gestalt of the operation constituted so that received data might be inputted into a record medium. It branches and the received data obtained from a demodulator are inputted into a record control section, and by control of the control section 15 by the specification from the input section 15, received data are recorded on the direct record medium 14, while it has been quality. At the time of regeneration, it performs, views and listens to program purchase and viewing-and-listening quality specification by the alter operation of the input section 15. Moreover, it constitutes so that the bit rate converter 16 and the data after conversion of a bit rate may be outputted to the D/A-conversion section 7 and it may view and listen to them, and in addition to quality of image, tone quality is also made into a selection matter, and selection by the user consists of the gestalt of this operation possible.

#### **EFFECT:**

[Effect of the Invention] According to this invention, since it is possible to pay the purchase tariff of a



program according to the quality of selected picture and voice in case it views and listens to a picture and voice, it is possible for the alternative at the time of a televiewer's program purchase to increase, and to realize viewing-and-listening promotion of a charged broadcast to a televiewer.

[0032] For example, by setup of accounting information data, when it is in the environment where a quality, such as expressing the program of a high-definition broadcast (HDTV) as the conventional TV for NTSC, must be lowered and seen, since it is enabled to choose so that the tariff united with the quality of a picture image and voice according to the viewing-and-listening environment may be paid, the convenience of the televiewer in a charged broadcast is raised and viewing-and-listening promotion can be aimed at.

[0033] Moreover, in record of a program, since it constitutes so that accounting information data may also be recorded together into picture-recording data and the same accounting as the time of a broadcast reception can be performed at the time of regeneration, it is not necessary to make it picture-recording prohibition and to broadcast, and a time shift display of a charged broadcast is attained.

[0034] Furthermore, since accounting information data are contained in the recorded data, when it reproduces with other equipments with the same function, since it can reproduce by the same accounting, i.e., the quality of the hope of the program which it was quality and was recorded on videotape according to the audience fee, and a copyright can be protected, removal of an archive medium is attained.

[0035] If it is quality, it records on videotape and it is pleased, viewing and listening to the charged broadcast other than the viewing-and-listening gestalt of a more than in a televiewer first in the quality of a low tariff by applying this invention to a receiver, reproducing, viewing and listening to the program which it was quality and was recorded on videotape by high definition etc. can be responded to the various needs of the viewing-and-listening gestalt of a program.

## CLAIMS

[Claim 1] The broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice data are received. A means to take out and decrypt accounting information data, and the picture data and voice data which were encoded from the broadcast data which are the digital-broadcasting accounting equipment which performs accounting according to the viewing-and-listening quality, and were received, A means to change the quality of the decrypted picture data and voice data, and a means to specify the quality of the picture and voice at the time of a user viewing and listening, Digital-broadcasting accounting equipment characterized by performing accounting of the amount of money which changed with the quality of image and tone quality which consists of a means accumulated and transmitted and specified the accounting performance at the time of viewing and listening of a user to one's accounting post.

[Claim 2] The broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice

data are received. The means which takes out accounting information data, and the picture data and voice data which were encoded from the broadcast data which are the digital-broadcasting accounting equipment which performs accounting according to the viewing-and-listening quality, and were received, A means to change the picture data and voice data taken out from broadcast data into the code data from which a quality is different, A means to specify the quality after conversion of picture data and voice data, and a means to record picture data and voice data, Digital-broadcasting accounting equipment characterized by performing accounting of the amount of money which changed with the quality of image and tone quality which a means to accumulate and transmit an accounting performance to one's accounting post was consisted of, and was specified when a user was record of picture data and voice data.

[Claim 3] The broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice data are received. A means to record the broadcast data which are the digital-broadcasting accounting equipment which performs accounting according to the viewing-and-listening quality, and were received, A means to take out and decrypt accounting information data, and the picture data and voice data which were encoded at the time of regeneration of the recorded broadcast data, A means to change the quality of the decrypted picture data and voice data, and a means to specify the quality of the picture and voice at the time of a user viewing and listening, Digital-broadcasting accounting equipment characterized by performing accounting of the amount of money which changed with the quality of image and tone quality which the user specified when carrying out regeneration viewing and listening of the broadcast data which consist of a means accumulated and transmitted and recorded the accounting performance to one's accounting post.

[Claim 4] The broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice data are received. A means to take out and decrypt accounting information data, and the picture data and voice data which were encoded from the broadcast data which specified the viewing-and-listening quality, received the aforementioned broadcast data, are the digital-broadcasting system which performs accounting according to the viewing-and-listening quality, and were received, A means to change the quality of the decrypted picture data and voice data, and a means to specify the quality of the picture and voice at the time of a user viewing and listening, The digital-broadcasting system characterized by performing accounting of the amount of money which changed with the quality of image and tone quality which consists of a means accumulated and transmitted and specified the accounting performance at the time of viewing and listening of a user to one's accounting post.

[Claim 5] The broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice data are received. The means which takes out accounting information data, and the picture data and voice data which were encoded from the broadcast data which specified the

viewing-and-listening quality, received the aforementioned broadcast data, are the digital-broadcasting system which performs accounting according to the viewing-and-listening quality, and were received, A means to change the picture data and voice data taken out from the broadcast into the code data from which a quality is different, A means to specify the quality after conversion of picture data and voice data, and a means to record picture data and voice data, The digital-broadcasting system characterized by performing accounting of the amount of money which changed with the quality of image and tone quality which a means to accumulate and transmit an accounting performance to one's accounting post was consisted of, and was specified when a user was record of picture data and voice data.

[Claim 6] The broadcast data which consist of the encoded picture data and voice data, and accounting information data according to the viewing-and-listening quality of aforementioned picture data and voice data are received. A means to record the broadcast data which specified the viewing-and-listening quality, received the aforementioned broadcast data, are the digital-broadcasting system which performs accounting according to the viewing-and-listening quality, and were received, A means to take out and decrypt accounting information data, and the picture data and voice data which were encoded at the time of regeneration of the recorded broadcast data, A means to change the quality of the decrypted picture data and voice data, and a means to specify the quality of the picture and voice at the time of a user viewing and listening, The digital-broadcasting system characterized by performing accounting of the amount of money which changed with the quality of image and tone quality which the user specified when carrying out regeneration viewing and listening of the broadcast data which consist of a means accumulated and transmitted and recorded the accounting performance to one's accounting post.

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